

What is claimed is:

1005349-012902
2005-07-01

1. A channel selection device used in a digital/analog broadcasting receiver comprising: a receiver for receiving an encoded digital/analog broadcasting signal originated from a broadcasting station; a digital/analog decoder for decoding the digital/analog broadcasting signal received from the receiver and then outputting the signal to a display; a memory for storing, as a channel map, channel information contained in the broadcasting signal decoded by the digital decoder; a control unit for controlling the sections of the receiver such that, upon reception of the channel selection instruction from the input device, the receiver receives the broadcasting signal of a selected channel; and an input device for inputting a user's instruction for channel selection to the control unit; wherein the receiver receives the digital broadcast and an analog broadcast which are originated through different physical channels, the digital broadcasting signal having, in one main channel, one or a plurality of sub-channels for originating contents therethrough and also having a VCT (Virtual Channel Table) containing virtual channel information providing the sub-channels with a correlation with an analog broadcasting physical channel; characterized in that,

the control unit, when trying to select a channel based on a channel upward/downward changing instruction sent from the input device, appropriately uses any one of the following four techniques of:

a first technique, by which when there is no channel information in the memory, the frequency is shifted to search for a desired physical channel to thereby select a channel contained in a detected physical channel and also store information of the channel in the channel map;

a second technique, by which when there is channel information of a current physical channel in the memory, a VCT thereof is referenced to select a sub-channel in the physical channel;

a third technique, by which the first technique is employed when a channel to which the current channel is upward/downward changed by the second technique goes out of the current physical channel range; and

a fourth technique, by which when information of all the channels is stored in the channel map in the memory, it is taken either a method of selecting a desired channel in referring to the channel map, or a method of selecting a desired channel based on the physical channel information in the channel map among the channels over a plurality of physical channels and of employing the second technique of selecting a desired channel among the channels in the same physical channel.

2. A channel selection device used in a digital/analog broadcasting receiver comprising: a receiver for receiving an encoded digital/analog broadcasting signal originated from a broadcasting station; a digital/analog decoder for decoding the digital/analog broadcasting signal received from the receiver and then outputting

the signal to a display; a memory for storing, as a channel map, channel information contained in the broadcasting signal decoded by the digital decoder; a control unit for controlling the sections of the receiver such that, upon reception of the channel selection instruction from the input device, the receiver receives the broadcasting signal of a selected channel; and an input device for inputting a user's instruction for channel selection to the control unit; wherein the receiver receives the digital broadcast and an analog broadcast which are originated through different physical channels, the digital broadcasting signal having, in one main channel, one or a plurality of sub-channels for originating contents therethrough and also having a VCT (Virtual Channel Table) containing virtual channel information providing the sub-channels with a correlation with an analog broadcasting physical channel; characterized in that,

the control unit, when trying to select a channel based on a channel upward/downward changing instruction sent from the input device, appropriately uses any one of the following four techniques of:

a first technique, by which when there is no channel information in the memory, the frequency is shifted to search for a desired physical channel to thereby select a channel contained in a detected physical channel and also store information of the channel in the channel map;

a second technique, by which when there is channel

information of a current physical channel in the memory, a VCT thereof is referenced to select a sub-channel in the physical channel;

a third technique, by which the first technique is employed when a channel to which the current channel is upward/downward changed by the second technique goes out of the current physical channel range; and

a fourth technique, by which when information of all the channels is stored in the memory, a desired channel is selected on the basis of the physical channel information in the channel map among the channels over a plurality of physical channels and, it is selected by the second technique among the channels in the same physical channel.

3. A channel selection device used in a digital/analog broadcasting receiver comprising: a receiver for receiving an encoded digital/analog broadcasting signal originated from a broadcasting station; a digital/analog decoder for decoding the digital/analog broadcasting signal received from the receiver and then outputting the signal to a display; a memory for storing, as a channel map, channel information contained in the broadcasting signal decoded by the digital decoder; a control unit for controlling the sections of the receiver such that, upon reception of the channel selection instruction from the input device, the receiver receives the broadcasting signal of a selected channel; and an input device for inputting a user's instruction for channel selection to the control unit; wherein the receiver receives the digital broadcast and an

analog broadcast which are originated through different physical channels, the digital broadcasting signal having, in one main channel, one or a plurality of sub-channels for originating contents therethrough and also having a VCT (Virtual Channel Table) containing virtual channel information providing the sub-channels with a correlation with an analog broadcasting physical channel; characterized in that,

the control unit, when trying to select a channel based on a channel upward/downward changing instruction sent from the input device, appropriately uses any one of the following four techniques of:

a first technique, by which when there is no channel information in the memory, the frequency is shifted to search for a desired physical channel to thereby select a channel contained in a detected physical channel and also store information of the channel in the channel map;

a second technique, by which when there is channel information of a current physical channel in the memory, a VCT thereof is referenced to select a sub-channel in the physical channel;

a third technique, by which the first technique is employed when a channel to which the current channel is upward/downward changed by the second technique goes out of the current physical channel range; and

a fourth technique, by which when information of all the channels is stored in the memory, a desired channel is selected by

referring to the channel map.

4. A channel selection device used in a digital/analog broadcasting receiver comprising: a receiver for receiving an encoded digital/analog broadcasting signal originated from a broadcasting station; a digital/analog decoder for decoding the digital/analog broadcasting signal received from the receiver and then outputting the signal to a display; a memory for storing, as a channel map, channel information contained in the broadcasting signal decoded by the digital decoder; a control unit for controlling the sections of the receiver such that, upon reception of the channel selection instruction from the input device, the receiver receives the broadcasting signal of a selected channel; and an input device for inputting a user's instruction for channel selection to the control unit; wherein the receiver receives the digital broadcast and an analog broadcast which are originated through different physical channels, the digital broadcasting signal having, in one main channel, one or a plurality of sub-channels for originating contents therethrough and also having a VCT (Virtual Channel Table) containing virtual channel information providing the sub-channels with a correlation with an analog broadcasting physical channel; characterized in that,

the control unit, when trying to select a channel based on a channel upward/downward changing instruction sent from the input device, selectively uses the channel information obtaining and channel selecting techniques corresponding to the contents of the

channel map of the channel upward/downward changing destination held in the memory and also stores the channel information in the channel map.

5. The digital/analog broadcasting receiver equipped with the channel selection device according to claim 1, for receiving a digital broadcast according to the ATSC (Advanced Television Systems Committee) standard and an analog broadcast according to the NTSC (National Television Systems Committee) standard.

6. A channel selection device used in a digital/analog broadcasting receiver comprising: a receiver for receiving an encoded digital/analog broadcasting signal originated from a broadcasting station; a digital/analog decoder for decoding the digital/analog broadcasting signal received from the receiver and then outputting the signal to a display; a memory for storing, as a channel map, channel information contained in the broadcasting signal decoded by the digital decoder; a control unit for controlling the sections of the receiver such that, upon reception of the channel selection instruction from the input device, the receiver receives the broadcasting signal of a selected channel; and an input device for inputting a user's instruction for channel selection to the control unit; wherein the receiver receives the digital broadcast and an analog broadcast which are originated through different physical channels, the digital broadcasting signal having, in one physical channel (main channel), one or a plurality of sub-channels for originating contents therethrough and also having a VCT (Virtual

Channel Table) containing virtual channel information providing the sub-channels with a correlation with an analog broadcasting physical channel; characterized in that,

the control unit, when trying to select a channel based on a channel upward/downward changing instruction sent from the input device, selects a desired channel by selectively using any one of the following first through fourth procedures corresponding to the channel changing contents and how the data table containing the VCT is held in the memory:

a first procedure, by which when the sub-channel is changed in the current main channel, the VCT in the current physical channel is referenced to select an upward/downward sub-channel;

a second procedure, by which when a main channel is to be changed and if there is no channel data of a main channel to which the current main channel is to be changed and the sub-channel, the reception frequency is shifted upward/downward to thereby search for other physical channels and then refers to the VCT of a detected physical channel, thus selecting a sub-channel having the largest/smallest sub-channel number;

a third procedure, by which when a main channel is to be changed and if there is the channel data of the main channel to which the current main channel is to be changed and there is no sub-channel data, the main channel data is referenced to change the main channel and then refers to the VCT detected in the corresponding physical channel, thus selecting a sub-channel having the

largest/smallest sub-channel number; and

a fourth procedure, by which when a main channel is to be changed and there is the channel data of a main channel to which the current main channel is to be changed and the sub-channel, the channel data is referenced to change the main channel and the sub-channel, thus selecting the channel.

7. A channel selection device used in a digital/analog broadcasting receiver comprising: a receiver for receiving an encoded digital/analog broadcasting signal originated from a broadcasting station; a digital/analog decoder for decoding the digital/analog broadcasting signal received from the receiver and then outputting the signal to a display; a memory for storing, as a channel map, channel information contained in the broadcasting signal decoded by the digital decoder; a control unit for controlling the sections of the receiver such that, upon reception of the channel selection instruction from the input device, the receiver receives the broadcasting signal of a selected channel; and an input device for inputting a user's instruction for channel selection to the control unit; wherein the receiver receives the digital broadcast and an analog broadcast which are originated through different physical channels, the digital broadcasting signal having, in one physical channel (main channel), one or a plurality of sub-channels for originating contents therethrough and also having a VCT (Virtual Channel Table) containing virtual channel information providing the sub-channels with a correlation with an analog broadcasting physical

channel; characterized in that,

the control unit, when trying to select a channel based on a channel upward/downward changing instruction sent from the input device, selects a desired channel by selectively using any one of the following procedures:

referring to the VCT contained in the current physical channel to change the sub-channel when a sub-channel in the current main channel is to be changed;

searching for other physical channels to refer to a detected VCT, thus changing the sub-channel when a main channel is to be changed, and when there is no channel data of the main channel and the sub-channel;

referring to the main channel data to change the main channel and referring to the corresponding VCT, thus changing the sub-channel when there is the main channel data but not the sub-channel data; and

referring to the channel data to change each of the channels when there is the channel data of the main channel and the sub-channel.

8. The digital/analog broadcasting receiver equipped with the channel selection device according to claim 6, for receiving a digital broadcast according to the ATSC (Advanced Television Systems Committee) standard and an analog broadcast according to the NTSC (National Television Systems Committee) standard.